

P1000 OPERATING INSTRUCTION MANUAL



Low Velocity Powder Actuated Fastening Tool



DO NOT OPERATE THE P1000 TOOL UNTIL YOU HAVE READ THIS MANUAL AND RECEIVED THE PROPER TRAINING ACCORDING TO ANSI STANDARD A 10.3-1995.

WARNING!

PRIOR TO OPERATING THE P1000 TOOL, STUDY THIS MANUAL CAREFULLY AND DEVELOP A THOROUGH UNDERSTANDING OF THE CONTENTS.

PROPER TRAINING ACCORDING TO THE CURRENT ANSI STANDARD A 10.3, SAFETY REQUIREMENTS FOR POWDER ACTUATED FASTENING SYSTEMS MUST BE COMPLETED AND A POWERS FASTENERS QUALIFIED OPERATOR CARD MUST BE OBTAINED PRIOR TO OPERATION OF THE TOOL. STATE, LOCAL, OR OTHER REGULATIONS SHOULD ALSO BE FOLLOWED. LAWS, REGULATIONS, AND STANDARDS REGARDING THE USE OF POWDER ACTUATED TOOLS MAY PERIODICALLY BE REVISED. ANY SUCH REVISIONS MAY CHANGE THE SAFETY AND OPERATING PROCEDURES DESCRIBED IN THIS MANUAL. POWERS FASTENERS, INC. IS NOT RESPONSIBLE FOR ANY SUCH REVISIONS WHICH OCCUR AFTER PUBLICATION OF THIS MANUAL. IT IS THE RESPONSIBILITY OF THE USER TO MAINTAIN FAMILIARITY WITH THE CURRENT LAWS, REGULATIONS, AND STANDARDS THAT APPLY TO THE POWDER ACTUATED TOOL.



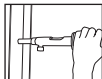
DANGER! - TO AVOID SERIOUS INJURY OR DEATH:

NEVER CLOSE TOOL WITH ANY PART OF HAND OVER MUZZLE END.

OPERATORS AND BYSTANDERS MUST WEAR EYE AND HEARING PROTECTION.

ALWAYS ASSUME TOOL IS LOADED. DO NOT PLACE A FINGER ON THE TRIGGER OF LOADED TOOL UNTIL MUZZLE END IS AGAINST WORK SURFACE AND YOU ARE READY TO MAKE A FASTENING. NEVER PLACE YOUR HAND OVER THE MUZZLE WITH A POWDER LOAD IN THE TOOL. IF THE TOOL ACCIDENTALLY DISCHARGES THE PISTON OR FASTENER MAY PENETRATE YOUR HAND RESULTING IN SERIOUS INJURY.

IT IS VERY IMPORTANT THAT THE OPERATOR OF THIS TOOL COMPLETELY READS AND UNDERSTANDS THE ENTIRE TOOL MANUAL AND COMPLETES THE OPERATOR'S EXAM ON THE LAST PAGE. THE WARRANTY WILL NOT BE VALID UNTIL THE TEST IS RECEIVED, WITH A COPY OF YOUR RECEIPT, AND REVIEWED BY POWERS FASTENERS, INC.



Warranty

All warranties of the products described herein, expressed or implied, including the warranties of merchantability and fitness for particular purposes are specifically excluded, except for the following:

Powers Fasteners will repair or replace at its sole option any tool part, or fastener which within five years after sale by Powers Fasteners or its distributors, is found by Powers Fasteners to be defective in material or workmanship, normal wear and tear excluded. This is the sole warranty of Powers Fasteners and the sole remedy available to distributor or buyer.

NOTE — JUST AS NO ONE CAN MERELY READ A BOOK ABOUT DRIVING AN AUTOMOBILE AND THEN HOPE TO RUN IT SAFELY, NO ONE SHOULD ATTEMPT TO USE ANY POWDER TOOL WITHOUT ADEQUATE, COMPETENT, PERSONAL INSTRUCTION. AND, JUST AS NO AUTOMOBILE INSTRUCTION BOOK OR INSTRUCTOR CAN FOREWARN A LEARNER AGAINST ALL CONTINGENCIES AND EMERGENCIES, NEITHER CAN POWERS FASTENERS INSTRUCTORS OR PRINTED INFORMATION DETAIL ALL POSSIBLE CONDITIONS SURROUNDING THE USE OF POWERS TOOLS AND PRODUCTS. THE MANUFACTURER DISCLAIMS RESPONSIBILITY FOR INJURIES TO PERSONS OR PROPERTY WHICH MAY RESULT FROM DISREGARD OF THESE OPERATING INSTRUCTIONS.

Introduction

Thank you for purchasing the Powers P1000 low velocity powder actuated tool. This tool will provide you with excellent performance provided the steps for proper operation and maintenance are followed. Powder actuated fastening systems can provide a cost effective method of fastening fixtures for light duty, static load conditions. The systems provided by Powers Fasteners consist of specially designed fasteners, installation tools, and powder loads which are designed to function in combination to provide optimum performance. While powder actuated tools can provide one of the fastest and economical means of fastening, they can also be dangerous if they are not operated properly.

Prior to operating the P1000 tool, you must be properly trained in the operation and maintenance of this tool and be issued a Powers Fasteners Qualified Operator Card. When using the tool, you must have this card in your possession. As part of the training process, you should read and understand the contents of this instruction manual especially the safety precautions.

Powder actuated tools may be operated only by properly trained operators as described in ANSI Standard A 10.3, Safety Requirements for Powder Actuated Fastening Systems. For complete tool operation details, contact your local Powers Fasteners Branch office or distributor for training.

Remember, safety begins with you! It is your primary responsibility when operating this tool. Failure to follow the proper operating, maintenance, and safety procedures can result in serious injury or death to yourself or bystanders. In addition to the training provided, you should be familiar with any local, state, and federal regulations. If you have any questions which are not covered in this manual, please contact your local Powers Fasteners Branch office or distributor.

SIZE RANGE

1/2" to 3" pin lengths, .22 caliber

TOOL DESCRIPTION

Hammer actuated, professional grade powder actuated tool. Engineered for high reliability, low maintenance and speed. This tool uses four levels of power; gray through yellow loads (levels 1-4) and .300, 8mm head fasteners with lengths of 1/2" through 3" and 1/4"-20 threaded studs.

TECHNICAL DATA

TOOL BODY	PIN LENGTH	TOOL LENGTH	LOAD TYPE
Precision Molded Rubber	1/2" to 3" Total Length	13"	.22 Caliber
TOOL WEIGHT	POWER LEVEL	PIN TYPE	
3 lbs.	Gray (1), Brown (2) Green (3), Yellow (4)	Ballistic Point Drive Pin, .300 Head Drive Pin, 1/4"-20 Threaded Stud	

FASTENER FUNCTIONING

Prior to learning the safe operating procedures for this tool, it is important to understand how a powder actuated fastener works. A powder actuated fastener is considered to be a direct drive or forced entry type of fastener because it is driven directly into the base material. The driving action causes tremendous forces to be applied to the fastener. Powers powder actuated fasteners are specially designed and manufactured using an austempering process to withstand the forces imposed during the driving operation. Only fasteners manufactured or supplied by Powers Fasteners should be used in this tool.

FUNCTIONING IN CONCRETE

The performance of a powder actuated fastener when installed into concrete or masonry base materials is based on the following factors:

1. Strength of the base material
2. Hardness and concentration of the aggregate
3. Shank diameter of the fastener
4. Depth of embedment into the base material
5. Fastener spacing and edge distance

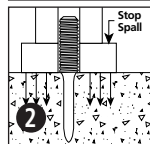
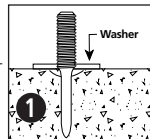
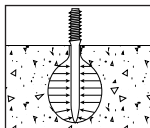
In addition to these factors, installation tool accessories such as a stop spall which reduces the tendency of the concrete surface to spall during the driving action can increase the performance of the fastener.

When a powder actuated fastener is driven into concrete, it displaces the volume of concrete around the embedded area of the fastener shank. As this occurs, the concrete directly surrounding the fastener is compressed and in turn presses back against the shank of the fastener. Additionally, the driving action generates heat which causes particles within the concrete to fuse to the shank of the fastener. This combination of compression and fusion holds the fastener in the concrete base material. A similar action occurs when fastening into block masonry.

Generally, the performance of the fastener in a given concrete strength will increase with greater embedment depths in a certain range. Depending on the fastener style and base material strength, embedment depths range from 5/8" to 1-1/2". For depths greater than this range, there is the possibility of the fastener bending or fishhooking which may decrease expected load capacities and create a safety hazard.

During the driving action, some localized surface spalling of the concrete may occur. Normally, this is a surface effect which does not effect the performance of the fastener. However, it may pose an aesthetic problem for exposed applications where a fixture is not used. In cases such as this, two methods can be used to improve the appearance of the fastening.

1. Another method used is to drive the fastener through a steel washer to improve the appearance of the application.
2. A stop spall adapter mounted on the powder actuated tool can help to reduce surface spalling.

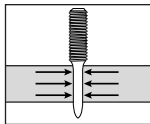


FUNCTIONING IN STEEL

The load performance of a powder actuated fastener when installed into steel base materials is based on the following factors:

1. Thickness of the steel
2. Tensile strength of the steel
3. Shank diameter of the fastener
4. Depth of point penetration through the steel
5. Fastener spacing and edge distance.

When a powder actuated fastener is driven into steel, it displaces the steel laterally 360° around the shank of the fastener. Since steel is an elastic material, it presses back against the shank of the fastener to hold it in place. As the diameter of the fastener shank is increased, the load capacity obtained will generally increase provided the steel thickness is sufficient to accept the fastener. To further increase fastener performance in steel, some fasteners have a knurled shank which allows the steel to form a key lock into the grooves to provide higher capacities than those obtained with a smooth shank. For optimum performance, the fastener point should completely penetrate the steel. Normally, a minimum of 1/4" is allowed for the point length. An increase in performance can be expected until the fastener no longer completely penetrates through the steel. At this point, the elastic properties of the steel cause a compression force to be developed at an angle against the fastener point which reduces load capacity. In thicker steel base materials, adequate load capacities may be obtained for applications in which the point of the fastener does not fully penetrate the steel. Job site performance tests are recommended.



Fasteners should not be used in areas that have been welded or cut with a torch as these procedures may have caused local hardening of the steel. Over driving of the fastener should be avoided as the rebound created may reduce the load capacity or cause dam

age to the fastener. When fastening into unsupported long steel members, it may be necessary to provide support in the area of the fastening to prevent spring action which can cause inconsistent penetration and a reduction in load capacity.

SUITABLE BASE MATERIAL

While powder actuated fasteners can be used successfully in concrete, certain masonry materials, and A 36 steel, some materials are completely unsuitable. Fasteners should never be fired into hard or brittle materials such as cast iron, tile, glass, or rock. These materials can shatter easily resulting in a potential safety hazard. In addition, soft base materials such as wallboard, plaster, or wood are not appropriate as the fastener could pass completely through these materials. The user should never guess when fastening into any base material. Failure to follow the recommended installation and safety guidelines can result in severe injury or death to the tool operator and/or bystanders.

CENTER PUNCH TEST

A center punch test should always be performed to determine the suitability of the base material for a powder actuated fastening. This test is relatively simple and can help to insure a safe, successful fastening. Be sure to wear the appropriate eye protection when performing this test. To begin, select the fastener to be used for the job. Then, place the point of the fastener against the proposed base material. Strike the fastener with a single hammer blow, then examine the point. If the point of the fastener is not blunted and the base material has a clear point indentation, it is acceptable to proceed with the first test installation.

Use of a powder actuated system is not recommended if the following occurs during the center punch test:

1. The fastener point has been blunted. This indicates that the base material is too hard.
2. The base material cracks or shatters. This indicates that the base material is too brittle.
3. When using an average hammer blow, the fastener penetrates the base material easily.

This indicates that the base material is too soft.

FASTENER INSTALLATION REQUIREMENTS

It is important to understand the required minimum base material thickness requirements along with the minimum spacing and edge distance requirements. Failure to follow these requirements can result in an unsuccessful fastening and create a safety hazard.

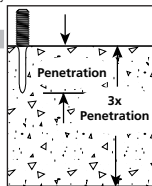
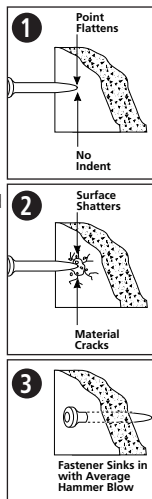
BASE MATERIAL THICKNESS

Concrete base material should be at least three (3) times as thick as the fastener embedment penetration. If the concrete is too thin, the compressive forces forming at the fasteners point can cause the free face of the concrete to break away. This can create a dangerous condition from flying concrete and/or the fastener and also results in a reduction of fastener holding power. For applications in the face shell of concrete masonry block, select a fastener length which will not exceed the thickness of the face shell.

FASTENER PENETRATION GUIDE

The following table lists typical embedment or penetration depths expected in the base materials listed. The penetration will vary depending on the density of the material. This table should be used as a guide since the consistency of these materials varies. When in doubt, a job site performance test should be conducted.

DENSITY	TYPICAL BASE MATERIAL	PENETRATION
Soft Masonry	Concrete block	1" - 1-1/4"
Average concrete	Poured concrete	3/4" - 1"
Dense concrete	Pre-stressed/pre-cast concrete	5/8" - 3/4"



EDGE DISTANCE

Do not fasten closer than 3" from the edge of concrete. If the concrete cracks, the fastener may not hold. Closer edge distances for applications such as sill plates may be permitted if specific fastener testing has been conducted.

SPACING

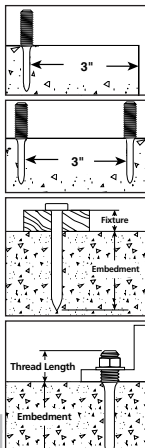
Setting fasteners too close together in concrete or masonry can cause cracking. The recommended minimum distance between fasteners is 3" center to center.

FASTENER LENGTH SELECTION IN CONCRETE

For permanent applications using pins in concrete, first determine the thickness of the fixture to be fastened. To this, add the required embedment or penetration into the base material. This will be the fastener shank length required. For applications in the face shell of masonry block, select a fastener length which will not exceed the thickness of the face shell.

For removable applications with threaded studs, the shank length required is equal to the embedment depth required. To determine the minimum threaded length, add the thickness of the fixture and the nut / washer thickness. The nut and washer thickness is equal to the nominal thread diameter. Do not over tighten threaded parts. Maximum tightening torque values are listed in the table below. Use of a nut setter is recommended to reduce the possibility of over tightening the fasteners. For critical applications, perform a job site test.

MAXIMUM TORQUE FOR 1/4" STUD (FT.-LBS.)	MAXIMUM TORQUE FOR 3/8" STUD (FT.-LBS.)
2	4



INSTALLATION IN STEEL

The following guidelines are based on the installation of a fastener in ASTM A 36 structural steel with the point fully penetrating the steel member. Recommended steel material thickness ranges from a minimum of 1/8" to a maximum of 3/8". For use in higher strength structural steel, applications where the point does not penetrate the steel member, or a thickness of steel greater than 3/8", job site performance tests are recommended.

BASE MATERIAL THICKNESS

Steel base materials should be a minimum of 1/8" in thickness.

EDGE DISTANCE

For installations in A 36 steel, 1/2" is the recommended minimum edge distance.

SPACING

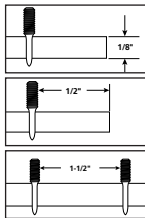
The recommended minimum distance between fastenings is 1-1/2" center to center for installations in ASTM A 36 steel.

FASTENER LENGTH SELECTION IN STEEL

For permanent applications when using pins in steel, first determine the thickness of the fixture to be fastened. To this, add the thickness of the steel base material plus a minimum of 1/4" to allow for proper point penetration. This will be the minimum fastener shank length required. Do not select a fastener length longer than that required for the application. An excessively long shank can burnish or polish the hole created in the steel resulting in a reduction in load capacity.

For removable applications with threaded studs, the shank length required is equal to the thickness of the steel base material plus a minimum of 1/4" to allow for proper point penetration. This will be the minimum fastener shank length required. Do not select a shank length longer than that required for the application. An excessively long shank can burnish or polish the hole created in the steel resulting in a reduction in load capacity. To determine the minimum threaded length, add the thickness of the fixture and the nut / washer thickness. The nut and washer thickness is equal to the nominal thread diameter.

Do not over tighten threaded studs, the maximum tight-ening torque is listed in the table below. Use of a nut setter is recommended to reduce the possibility of over tightening the fasteners. For critical applications, perform a job site test.



Tool Operation

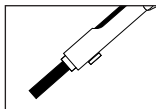
CAUTION: — Be sure to read and understand all of the safety precautions and training in this manual before attempting to operate the tool. (Check to be sure the tool is not loaded, the piston moves freely within the barrel, and no foreign objects or fasteners are in the barrel.) Perform the daily function test before using the tool.



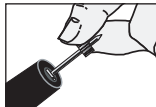
OPERATION

1. Always point the tool in a safe direction away from bystanders and the operator. Slide the barrel forward.

This can be done by snapping your wrist. The barrel should be pulled fully forward to reset the piston for the next fastening. Loss of power may result from an improperly positioned piston.



2. Always load the fastener before inserting powder load to prevent injury to the operator or bystanders in the event of an accidental discharge. Place the fastener, point out, into the end of the nose piece until the fluted tip fits inside. Do not use excessive force when inserting the fastener. If excessive force is required, stop and determine why the fastener can not be inserted. Correct the problem before proceeding.



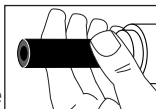
NOTE: Do not use fasteners longer than 3" as listed in the fastener selection section of this manual.

3. Make sure the breech is clear. Insert the powder load starting with the lowest power level. If this load does not fully set the fastener, try the next higher power level until the proper level is found.

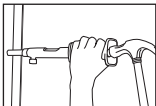


NOTE: Over driving or over powering a fastener can cause a safety hazard.

4. Pull the barrel all the way back to close the tool. Do not attempt to close the tool by exerting force on the front of the nose piece. Never place your fingers or hands over muzzle bushing. The safe position for hands and fingers are as shown in the diagram. Hands must never be placed in front of the tool muzzle or nose piece. In the event of an accidental discharge, the piston and/or fastener can pass through the operators hand.

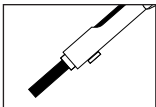


5. Use a one pound hammer to strike the hammer drive button with a solid normal blow. The fastener is instantly driven into place.



NOTE: In the event that the load does not discharge continue to hold the tool depressed against the work surface for at least 30 (thirty) seconds in case of a delayed load discharge. Then carefully remove the load and dispose of in a can of water or other non flammable liquid. Never attempt to force or pry a load out of a tool chamber. Do not discard unfired loads into a trash container.

6. To prepare for the next fastening, point the tool in a safe direction. Snap the barrel forward as described in step 1. This action will eject the spent powder load and properly reset the piston.



Always insert a new fastener before loading powder load in the chamber. Do not attempt to unload or disassemble a jammed, stuck or broken tool as improper handling may cause it to discharge and strike operator and/or bystander. A jammed tool must be pointed in a safe direction at all times. Tag the tool and lock it up. Call your Powers Fasteners representative for proper assistance.

Safety Precautions

Safety is your primary responsibility when operating any powder actuated tool. You must read and understand the contents of this manual. You must be familiar with all functional and safety requirements of the tool. It is your responsibility to obtain proper training and a Powers Fasteners operator card prior to using this tool in compliance with the current American National Standard A10.3 Safety Requirements for Powder Actuated Fastening Systems and the Federal Occupational Safety and Health Administration Standards (OSHA). Existing state or local regulations should also be followed. When using this tool, you must have the qualified operators card in your possession.

Revocation of card - Failure to comply with any of the rules and regulations for safe operation of powder actuated tools shall be cause for the immediate revocation of your qualified operator card.

The following is a summary of safety precautions to be followed when operating a Powers Fasteners powder actuated tool. Failure to follow these safety instructions can result in serious injury or death to operators or bystanders.

PRIOR TO OPERATING THE TOOL

1. Warning signs should always be posted within the area in which a powder actuated tool is to be used. These signs should be at least 8" x 10" in size with boldface type that is not less than 1" in height. The sign should state "Powder Actuated Tool In Use".
2. Approved safety goggles should always be worn by operator or bystander, to protect their eyes from flying particles. Hearing protection should always be worn by the operator and bystanders when using a powder actuated tool. Other personal safety protection as required should also be used.
3. Never modify or fabricate parts for use in your Powers tool. Use only Powers Fasteners, loads, and tool parts.
4. Hands or other body parts must never be placed in front of muzzle/barrel. Accidental discharge can cause piston and/or fastener to pass through the operator's hand.
5. Never compress the tool against any part of the body. Serious injury or death may result in the event of an accidental discharge.
6. Always point tool in a safe direction at all times.
7. Use the tool for its intended purpose only.

PREPARATION FOR LOADING THE TOOL

1. Tools must be checked prior to operating to make sure they are not fully or partially loaded with a powder load or fastener.
2. To insure safe operation, perform the daily function test described in this manual. Be sure the tool is not loaded prior to performing this test.

12. Do not fasten into a concrete base material less than 3 times as thick as the fastener penetration or into a steel base material thinner than 1/8".
13. Never attempt to install a fastener in a cracked or spalled area in concrete. Place fastener at least 3" (three inches) away from a spalled area to prevent the possibility of the fastener bending and striking an operator or bystander.
14. Do not attempt to install fasteners in areas that have been welded or cut with a torch as these procedures may have caused local hardening of the steel.
15. Do not fasten through a predrilled hole unless proper guidance is provided.
16. If you decide not to make a fastening after the tool has been loaded, you must always remove the powder load first followed by the fastener.
17. Never attempt to override the safety features of this tool.

HANDLING THE TOOL AND POWDER LOADS

1. Never leave a loaded tool unattended. Once the tool is loaded, make the fastening immediately or unload the tool.
2. Always unload the tool before work breaks, changing parts, cleaning or servicing, and when storing.
3. To prevent accidental discharge of loads, never carry the powder loads in the same container as the fasteners or other hard objects.
4. Always store the powder loads in the containers provided or in an enclosure provided for them. Never intermix the various powder levels. Keep them segregated in clearly identified containers.
5. Powder loads should never be used in firearms. They are normally more powerful than the cartridges supplied with the firearms.
6. Powder actuated tools and powder loads should always be stored under lock and key. Tools must be unloaded when not in use.

TOOL MALFUNCTION

1. In the event that a load fails to discharge after the trigger is pulled, the tool must be kept depressed against the work surface for a minimum of 30 (thirty) seconds in case of a delayed load discharge. Then carefully remove the entire load strip, and dispose of it in a can of water or other nonflammable liquid. Never attempt to force or pry a load out of a tool chamber.
2. Never discard unfired powder loads into a trash container.
3. Do not attempt to unload or disassemble a jammed, stuck or broken tool as improper handling may cause it to discharge and strike operator and/or bystander. A jammed tool must be pointed in a safe direction at all times. Tag the tool and lock it up. Call your Powers Fasteners representative for proper assistance.

- Do not operate this tool unless all its parts are in place and operating appropriately. Never attempt to use a malfunctioning tool. Call 1-800-524-3244 for assistance.
- Never guess about the suitability of a base material. If you are uncertain about the suitability of a base material, perform a center punch test.
- Do not operate the tool until you learn and understand the color code / numbering system used to identify the power level of powder loads.

OPERATING THE TOOL

- Only use fasteners and powder loads designed for this tool as supplied by Powers Fasteners.
- Do not use powder actuated tools in a flammable or an explosive atmosphere.
- Do not fire a tool without a fastener. The piston will impact the work surface possibly causing serious injury to the operator or bystanders along with damage to the tool.
- Do not load the tool until you are ready to make a fastening. Check the power load level before inserting it into the tool chamber.
- Fastener must be loaded prior to loading the powder load, to prevent injury to operator or bystander in the event of an accidental discharge.
- Do not close tool against work surface. The tool should be manually closed, with hand away from muzzle/barrel to prevent accidental discharge.
- Hold the tool perpendicular to the work surface at all times. Use a spill guard wherever possible. This will limit the possibility of fastener ricochet which could cause serious injury or death to the operator or bystanders.
- Always perform a test fastening with the lightest load level designed for use in the tool. If the lightest load fails to set the fastener, try the next highest load until the proper level is attained. Failure to follow this procedure may cause the fastener to be overpowered. If this occurs, the fastener may fully penetrate the base material causing serious injury or death to someone. Overpowering the fastener can also damage the tool, creating a safety hazard to both the operator or bystanders.
- Do not fasten into cast iron, tile, glass, or other types of brittle materials. These materials can shatter and create sharp fragments which may cause injury.
- Do not fire tool within 3" (three inches) of the edge of a concrete base material or within 1/2" (one-half inch) of the edge of a steel base material.
- Do not attempt to install a fastener closer than 3" (three inches) to another previously inserted fastener in concrete or 1-1/2" (one and one-half inch) in steel.

Fastener Selection Guide

300 HEAD DIAMETER DRIVE PINS

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50012	1/2" K	100	5000	.300	.143	.5
50016	5/8" K	100	5000	.300	.143	.5
50022	3/4"	100	5000	.300	.143	.5
50026	1"	100	5000	.300	.143	.6
50030	1-1/8"	100	1000	.300	.143	.7
50032	1-1/4"	100	1000	.300	.143	.8
50034	1-1/2"	100	1000	.300	.143	.9
50036	1-3/4"	100	1000	.300	.143	1.1
50038	2"	100	1000	.300	.143	1.2
50040	2-1/4"	100	1000	.300	.143	1.2
50042	2-3/8"	100	1000	.300	.143	1.3
50044	2-1/2"	100	1000	.300	.143	1.4
50046	2-3/4"	100	1000	.300	.143	1.6
50048	3"	100	1000	.300	.143	1.9

300 HEAD DIAMETER DRIVE PINS WITH TOP HAT

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50136	1/2" K	100	5000	.300	.143	.5
50138	5/8" K	100	5000	.300	.143	.5
40140	3/4"	100	5000	.300	.143	.5
50144	1"	100	5000	.300	.143	.6

300 HEAD DIAMETER STEP SHANK PINS

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50158	3/4" Step Shank	100	1000	.300	.143/130	.5
50159	1" Step Shank	100	1000	.300	.143/130	.6

300 HEAD DIAMETER DRIVE PINS WITH 3/4" WASHER

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50070	3/4"	100	1000	.300	.143	1.6
50080	2-1/2"	100	1000	.300	.143	2.5
50082	3"	100	1000	.300	.143	2.8

300 HEAD DIAMETER DRIVE PINS WITH 7/8" WASHER

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50090	1"	100	1000	.300	.143	1.9
50092	1-1/4"	100	1000	.300	.143	2.0
50094	1-1/2"	100	1000	.300	.143	2.1
50096	2"	100	1000	.300	.143	2.4
50098	2-1/2"	100	1000	.300	.143	2.7
50100	3"	100	1000	.300	.143	3.0

300 HEAD DIAMETER DRIVE PINS WITH 1" WASHER

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50108	1-1/4"	100	1000	.300	.143	2.2
50110	1-1/2"	100	1000	.300	.143	2.3
50112	2"	100	1000	.300	.143	2.6
50114	2-1/2"	100	1000	.300	.143	2.9
50116	3"	100	1000	.300	.143	3.2

.300 HEAD DIA. DRIVE PINS W. 1-7/16" INSULATION WASHER

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50122	1-1/2"	100	1000	.300	.143	2.1
50126	2-1/2"	50	500	.300	.143	2.7
50132	3"	50	500	.300	.143	3.0

1/4" -20 THREADED STUDS

CAT. NO.	THREAD LENGTH	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50320	1/2"	1/2" K	100	5000	1/4"	.143	.8
50322	3/4"	1/2" K	100	1000	1/4"	.143	1.1
50326	3/4"	3/4"	100	1000	1/4"	.143	1.2
50328	1/2"	1"	100	1000	1/4"	.143	1.2
50330	3/4"	1"	100	1000	1/4"	.143	1.4
50334	1/2"	1-1/4"	100	1000	1/4"	.143	1.4
50336	3/4"	1-1/4"	100	1000	1/4"	.143	1.5
50338	1-1/4"	1-1/4"	100	1000	1/4"	.143	1.7

.300 HEAD DIAMETER PINS WITH CEILING CLIPS

CAT. NO.	SHANK LENGTH	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WIRE HOLE	WT./ 100
50363	1"	100	1000	.300	.143	0.278"	3.4
50364	1"	100	1000	.300	.143	0.278"	3.5
50368	1"	100	1000	.300	.143	0.278"	3.0
50370	1-1/4"	100	1000	.300	.143	0.278"	3.7
50374	1-1/4"	100	1000	.300	.143	0.278"	3.2

.300 DIAMETER HEAD DRIVE PINS WITH BX CABLE STRAPS AND CONDUIT CLIPS

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50150	1"	100	1000	.300	.143	3.5
50152	1-1/4"	100	1000	.300	.143	3.7
50380	1/2" EMT 1-1/4" pin	100	1000	.300	.143	3.4
50381	1/2" EMT 1" pin TH	100	1000	.300	.143	3.3
50382	1/2" EMT 1" pin	100	1000	.300	.143	3.3
50384	3/4" EMT 1-1/4" pin	100	1000	.300	.143	3.5
50385	3/4" EMT 1" pin TH	100	500	.300	.143	3.4
50386	3/4" EMT 1" pin	100	1000	.300	.143	3.3
50388	1" EMT 1" pin TH	25	250	.300	.143	3.2

.300 HEAD DIAMETER PIN WITH REBAR BASKET CLIP

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.	HEAD DIA.	SHANK DIA.	WT./ 100
50702	32mm w/ basket clip	100	100	8mm	.143	4.0
50704	37mm w/ basket clip	100	100	8mm	.143	4.1
50710	37mm w/ basket clip	100	100	8mm	.143	4.3
50712	37mm w/ basket clip	100	100	8mm	.143	4.4
50716	37mm w/ basket clip	100	100	8mm	.143	4.6
50718	37mm w/ basket clip	100	100	8mm	.143	4.8

Powder Load Selection Guide

CAT. NO.	POWER LEVEL	LOAD COLOR	SIZE	STD. BOX	STD. CTN.	MASTER CTN.	WT./ 100
50500	1	Gray	.22A	100	1000	20000	.33
50502	2	Brown	.22A	100	1000	20000	.33
50504	3	Green	.22A	100	1000	20000	.33
50506	4	Yellow	.22A	100	1000	20000	.33

Troubleshooting**ALWAYS CHECK INSTRUCTION MANUAL FOR PROPER ASSEMBLY OF PARTS**

PROBLEM	POSSIBLE CAUSE	SOLUTION
Fastener Overdriving	Power level too high / Pin too short	Use a lower powder load level number or a longer pin
	Soft base material	Check base material suitability section
Tool does not fire	Tool not depressed completely	See "Tool does not depress completely" section below
	Firing pin damaged	Replace damaged part(s)
Tool does not depress completely	Damaged firing pin parts, ejector, etc. Parts assembled improperly	Check the parts for damage or improper assembly
Power reduction or inconsistent fastener penetration	Barrel is not pulled fully forward when cycling tool.	Barrel must be pulled out completely to properly reset the piston
	Worn or damaged piston or piston ring	Replace piston or piston ring

Powder load will not eject after firing tool	Barrel is not pulled forward completely when the tool is cycled	Firmly snap the tool open. If necessary dismantle and clean
	Bent piston or damaged piston ring	Remove and replace piston or piston ring
	Build-up of dirt in breech	Clean breech area
Powder load will not eject after firing tool	Stuck powder load	Remove barrel assembly from tool and carefully unthread nosepiece. Carefully pull the piston out of the barrel. Use brass or aluminum rod to gently push load out of chamber. DANGER: If the load has not been fired use extreme care when removing to avoid discharging load. If load does not come out very easily, call your Powers Fasteners Authorized representative
Tool cannot be opened or cycled	Lack of proper cleaning Damaged or bent piston	Clean tool thoroughly Remove and replace piston
	Broken or damaged parts	Tag tool with warning "Defective - Do Not Use" place in locked container and contact your Powers Fasteners Authorized representative for service
Piston stuck in the forward position	Piston has been overdriven and is jammed against piston reset pin	Tap the piston against a hard surface
Chipped or damaged piston	Tool not held on work surface squarely. This allows the piston to slip off the head of the pin and cause damage to the piston	Machine piston as shown on page ?? Piston regrinding may be performed only by qualified individuals
Barrel will not open easily	Bent piston	Remove and replace piston
	Excessive build-up of dirt	Disassemble and clean tool
	Piston reset pin is damaged	Replace piston reset pin
	Foreign material jammed between the barrel and housing	Disassemble and remove foreign particles
Barrel opens too easily	Reset pin spring has worn	Remove and replace with a new spring

QUALIFIED TOOL OPERATOR EXAMINATION

COMPLETE EXAMINATION, FILL OUT REQUIRED INFORMATION ON REVERSE SIDE AND AND PLACE IN AN ENVELOPE WITH POSTAGE TO MAIL

☒ Check the correct answer.

- 1 It is necessary to read the Operator's Manual prior to operating a Powers Fasteners low velocity tool.
☐ True ☐ False
- 2 When fastening into concrete, the base material should be greater than the shank penetration by at least:
☐ 1 time ☐ 2 times ☐ 3 times
- 3 When operating a powder actuated tool, your hand should never be placed:
☐ around the tool body
☐ in front of the tool muzzle
☐ over the tool handle
- 4 To determine the suitability of a base material, use the fastener as a center punch.
 - If the fastener is blunted, do not fasten; the material is too:
☐ soft ☐ hard ☐ brittle
 - If the fastener penetrates easily, do not fasten; the material is too:
☐ soft ☐ hard ☐ brittle
 - If the material cracks or shatters, do not fasten; the material is too:
☐ soft ☐ hard ☐ brittle
- 5 Unsafe applications for powder actuated tools may be caused by which of the following?
 - ☐ a soft base material
 - ☐ improper powder load
 - ☐ fastening too close to an unsupported edge
 - ☐ a malfunctioning tool
 - ☐ fastening into a spalled area
 - ☐ fastening through a pre-existing hole
 - ☐ all of the above
- 6 Which one of the following building materials is not suitable as a receiving material (base material) for powder actuated fasteners?
 - ☐ sheet rock ☐ wood ☐ fiberglass
 - ☐ sheet metal ☐ all of the above

- 7 When considering the safety of a particular application, the operator must think about:

- ☐ the base material
- ☐ the powder load power level
- ☐ the operator's safety
- ☐ the safety of bystanders and fellow workers
- ☐ all of the above

- 8 The proper loading procedure is: insert fastener first, powder load second. The fastener should always be placed in the tool prior to the load.

☐ True ☐ False

- 9 Which one of the following materials is usually suitable for powder actuated fastenings?

- ☐ poured concrete ☐ hollow tile
- ☐ surface hardened steel ☐ glazed brick

- 10 In concrete, a fastener should be driven no closer to an unsupported edge than:

☐ 1/2" ☐ 1-1/2" ☐ 3"

- 11 Fishhooking is a condition which can occur when a powder actuated fastener strikes a piece of hard aggregate or very hard concrete, bends and comes out of the work surface. A fishhook can cause a serious injury or death.

☐ True ☐ False

- 12 Placing a hand over the muzzle bushing of a loaded tool can result in serious injury from piston overdrive or an escaping fastener if the tool is discharged accidentally.

☐ True ☐ False

- 13 Piston overdrive is caused by overpowering of the tool or by discharging the tool against a soft surface.

☐ True ☐ False

- 14 Malfunctioning tools cannot be used and must be removed from service immediately.

☐ True ☐ False

- 15 After conducting a Center Punch Test, the best way to check the base material is to set several fasteners using the least powerful load.

☐ True ☐ False

- 16 Safety goggles and hearing protection should not be worn by the operator and any necessary bystanders when using the tool.

☐ True ☐ False

- 17 A powder actuated tool cannot be safely used in an explosive or flammable atmosphere.

☐ True ☐ False

- 18 List the proper powder load level number (1-6) next to each color listed.

Red _____ Brown _____
Green _____ Yellow _____
Gray _____ Violet _____

- 19 The weakest power level should be used when making the first fastening.

☐ True ☐ False

- 20 You can fasten into welded areas of steel.

☐ True ☐ False

P1000

- The proper procedure if a powder load fails to ignite is to hold the tool against the work surface and wait 30 seconds, then proceed exactly as directed in the Operator's Manual.
☐ True ☐ False
- Powers Fasteners powder loads for the P1000 are .22 caliber, "A" tapered, neck down, rim fire, short crimped cartridges. No other powder load may be used in this tool.
☐ True ☐ False
- Operators should never compress the P1000 or any other powder actuated tool against any part of their body.
☐ True ☐ False

QUALIFIED TOOL OPERATOR EXAMINATION**COMPLETE EXAMINATION ON REVERSE SIDE, FILL OUT REQUIRED INFORMATION BELOW
AND PLACE IN AN ENVELOPE WITH POSTAGE TO MAIL**_____
OPERATOR'S NAME_____
DATE_____
COMPANY NAME_____
HOME ADDRESS_____
COMPANY ADDRESS_____
AGE_____
DATE OF BIRTH_____
COMPANY PHONE_____
SIGNATURE_____
DATE**LICENSE AND WARRANTY ACTIVATION****THE P1000 TOOL IS WARRANTED FOR 90 DAYS FROM DATE OF PURCHASE.**

I certify that I have read and understand the P1000 Tool Operating Instruction Manual and have taken the Operator's exam. I understand the importance of following all safety procedures and that failure to read, comprehend, and follow the detailed rules and warnings regarding the safe operation of powder actuated tools can result in serious injury or death to the tool operator or bystanders. I agree to conform to all the rules and regulations regarding the use of powder actuated tools.

(Please print clearly)_____
THE SERIAL NUMBER ON MY TOOL IS:**PLEASE SEND MY TOOL LICENSE TO:** __________
NAME_____
ADDRESS_____
CITY_____
STATE_____
ZIP_____
PHONE

PLACE IN AN ENVELOPE AND MAIL TO:

Tool License Coordinator • Powers Fasteners, Inc. • 2 Powers Lane • Brewster, NY 10509